

IX. *On the Generic Characters of Hawaiian Crabronidæ; four new genera characterized.* By ROBERT CYRIL LAYTON PERKINS, B.A. Communicated by DR. DAVID SHARP, M.A., F.R.S.

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WHEN describing the species of Hawaiian Crabronidæ in the "Fauna Hawaiiensis" I referred the bulk of the species to the subgenus *Solenius*, establishing a new genus *Nesocrabro* for the remainder. At that time I erroneously supposed the common European *Crabro vagus* to be the type of *Solenius*, and at the same time pointed out that the Hawaiian species would probably form several new genera. It still appears to me that the *Crabro vagus* is most closely allied to some of these species, but is not congeneric. Three of the Hawaiian species are evidently generically distinct from the others, each forming the type of a new genus, and two of these appear to me to be highly remarkable forms. The remaining species formerly referred to *Solenius* are still a rather ill-assorted lot, showing important differences in structure, but still may be conveniently included in a single genus. *Nesocrabro*, the peculiar genus previously characterized, is also a very distinct form, and in the table of generic characters given below it is included with the four other genera. I may add that I have not been able to add a single new species of Crabronidæ to the Hawaiian list during my present visit, and I imagine that very few species remain to be discovered. All the Crabronidæ of the islands belong to Ashmead's subfamily *Crabroninæ*, the other subfamilies being quite unrepresented. Of the Hawaiian genera I consider that the species of *Xenocrabro* probably most nearly resemble the type by which the islands were originally colonized, and that the other four are special developments in various directions from *Xenocrabro*, the development of generic characters having proceeded along much the same lines as is the case with Crabronids in other parts of the world. Thus *X. affinis* makes a distinct approach to the genus *Nesocrabro*, *X. monticola* to *Hylcrabro* in some important characters.

The following characters appear to be common to all the Hawaiian Crabronini:

♂ ♀. Ocelli in a triangle, which is much widest at the base, the posterior ocelli being nearly twice as far apart as either one is from the anterior ocellus; recurrent nervure received very near the apex of the cubital cell; superorbital foveæ at most represented by elongate smoother spaces, or shallow and often shining impressions.

♂. Antennæ 12-jointed, 3rd joint always long, much longer than the 4th, but shorter than the 4th and 5th together, not less than twice as long as the 2nd; 6th always emarginate beneath and produced more or less below the base of the 7th, often forming a very prominent tooth; spur of middle tibiæ well-developed; apex of mandibles always bidentate.

♀. Pygidial area always defined by distinct carinæ, but varying in form from more or less wide and triangular, to very narrow and elongate.

1. (2) Antennal fossæ in front view of the head well separated from the eye-margins by a space at least nearly as wide as one of the antennal fossæ.

Clypeus with suberect hairs, the surface not concealed by dense appressed pilosity of metallic colour, the apex widely rounded; propodeum with a median sulcus.

♂ with the 6th joint of the antennæ very little produced beneath at the apex, not forming a strongly prominent tooth. ♀ with the 5th segment (except in one species) densely clothed with red hairs; mandibles 3-dentate at apex, the upper tooth generally not strongly developed, no post-median tooth on the upper edge; pygidial area very narrow and elongate.

*Nesocrabro P.*

2. (1) Antennal fossæ in front view contiguous to the eye-margins; clypeus always hidden under a dense covering of silver or golden appressed pilosity.
3. (4) ♂. Sixth joint of the antennæ produced into a long tooth, appearing simple in one aspect, but it is really flattened and of subquadrate form; front legs much modified.

*Oreocrabro*, gen. nov. (Type *Crabro abnormis*, Blackb.)

4. (3) ♂. With the 6th joint of the antennæ feebly or distinctly toothed, but the tooth not flattened and compressed.
5. (6) ♂. Second segment of abdomen beneath flattened and inclined at an obtuse angle to the flattened or impressed third segment; 6th joint of antennæ very little produced at apex, not projecting much below the base of the following:

abdomen above closely and evenly punctured, posterior tarsi very short, hardly as long as the tibiæ.

♀. Mandibles 3-dentate at apex, the post-median tooth of upper edge wanting, the edge at most a little sinuate, clypeus carinate and the apex rather widely emarginate; propodeum with a distinct consute groove dividing it from the postscutellum, smooth except for feebly-impressed nearly obsolete punctures and minute surface sculpture, no longitudinal wrinkles, calcaria of hind tibiæ much bent; abdomen with 2nd dorsal segment finely and closely punctured, beneath very tightly convex, the pygidial area long and narrow.

*Melanocrabro*, gen. nov. (Type *Crabro curtipes* P.)

6. (5) ♂. Second ventral segment lightly or strongly convex over most of its surface, not inclined at an angle to the following.

♀. Mandibles bidentate at apex, or if 3-dentate then there is a post-median small, but evident, tooth on the upper edge, and the 2nd ventral segment is very strongly convex.

7. (8) ♂. Second ventral segment very strongly convex in profile, generally more or less tumid; clypeus somewhat produced in front, its middle part subtriangular, somewhat widely truncated at the apex, 6th joint of antennæ with a very distinct prominent apical tooth; post-median tooth of upper edge of mandibles small.

♀. Mandibles 3-dentate at apex, with small post-median tooth on upper edge, clypeus somewhat produced and very distinctly emarginate at the apex; 2nd ventral segment very convex, tumid, or subtuberculate; pygidial area long and narrow; eye facets very coarse in front.

*Hylocrabro*, gen. nov. (Type *Crabro tumidiventris*, P.)

8. (7) ♂. Second ventral segment not strongly convex; if rather strongly, then the 6th joint of the antennæ is only very feebly or hardly visibly produced below the base of the following; clypeus with its anterior margin generally widely rounded, sometimes a little sinuate, rarely produced in front; post-median tooth distinct and sharp, often large.

♀. Mandibles bidentate and with post-median tooth of upper edge sharp and well-developed, clypeus often widely rounded at apex; if somewhat produced it has no distinct emargination; 2nd ventral segment simple, only lightly convex; pygidial area triangular, never very narrow and elongate, flat within the carinæ, or the middle part ob-

scurely raised. Facets of eyes very coarse or finer, variable according to species.

Mesothorax with a very shallow median impression anteriorly, the sculpture of the front part dense, consisting of very feebly impressed, indistinct punctures, the surface dull, posteriorly sometimes more definitely punctate. Propodeum in front with minute granulate sculpture under a strong lens rather than punctured, generally with some fine longitudinal wrinkles or irregular ones, sometimes very short, rarely wanting. ♂ with the anterior femora, trochanters and tarsi simple; the 6th joint of the antennæ very slightly or strongly produced at the apex according to the species.

*Xenocrabro*, gen. nov. (Type *Crabro unicolor*, Smith.)